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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/394, 189 09/13/99 UNDERBRINK

P B-64418

EXAMINER

WM01/0119

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ART UNIT

PAPER NUMBER

2681

DATE MAILED:

01/19/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

## Office Action Summary

Application No. 09/394,189	Applicant(s) Underbrink et al
Examiner Charles Craver	Group Art Unit 2681

Responsive to communication(s) filed on \_\_\_\_\_.

This action is FINAL.

Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

### Disposition of Claims

Claim(s) 1-21 is/are pending in the application.

Of the above, claim(s) 13-21 is/are withdrawn from consideration.

Claim(s) \_\_\_\_\_ is/are allowed.

Claim(s) 1-12 is/are rejected.

Claim(s) \_\_\_\_\_ is/are objected to.

Claims \_\_\_\_\_ are subject to restriction or election requirement.

### Application Papers

See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

The proposed drawing correction, filed on \_\_\_\_\_ is  approved  disapproved.

The specification is objected to by the Examiner.

The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. § 119

Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

All  Some\*  None of the CERTIFIED copies of the priority documents have been

received.

received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

### Attachment(s)

Notice of References Cited, PTO-892

Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

Interview Summary, PTO-413

Notice of Draftsperson's Patent Drawing Review, PTO-948

Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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## **DETAILED ACTION**

### ***Election/Restriction***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-12, drawn to a hand held wireless device, classified in class 455, subclass 129.
  - II. Claims 13-21, drawn to a wireless transmission system, classified in class 455, subclass 422.
2. The inventions are distinct, each from the other because of the following reasons:

Group I recites a hand-held device and antenna means therefore, and Group II recites a method for transmission and reception to and from a network.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
3. During a telephone conversation with Christopher J Rourk on 11-30-2000 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-12. Affirmation of this election must be made by applicant in replying to this Office action. Claims 13-21 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.
4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any

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amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(I).

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 2 and 5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claim 2 recites the limitation "the patch antenna" in line 1. There is insufficient antecedent basis for this limitation in the claim.

8. Claim 5 recites a receive antenna in lines 1-2 of the claim, and further recites "the antenna" in line 4 of the claim. However, since in claim 1, another (presumably transmitting) antenna is recited (see line 3), it is unclear to which antenna the inventor is referring.

***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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10. Claims 1, 2 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsuru et al, US Pat 5,530,919.

**Regarding claim 1,**

Tsuru discloses a hand-held communications device (1),  
an antenna (3) coupled to the device (col 3 lines 32-56), the antenna configured so as to  
radiate with greater field intensity over an area of less than 360 degrees of arc (col 3 line 57-col 4  
line 20, see FIG 11),  
wherein the portion of the field that is of greater intensity is in the direction away from the  
head of the user of the device (col 1 lines 52-59, col 2 lines 13-24).

**Regarding claim 2,**

since Tsuru teaches a radiotelephone, which typically operates on a single channel, or  
narrow band, it is inherent that a signal radiated from the device would be within a narrow and  
predetermined band.

**Regarding claim 8,**

Tsuru discloses a hand-held wireless cellular communications device (1, ), and  
a transmit antenna (33) and a receive antenna (34) coupled to the device (col 2 lines 3-12  
and col 5 lines 25-55).

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***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 3, 4, 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuru as applied to claim 1 above, and further in view of Filimon et al, US Pat 5,678,202.

**Regarding claim 3 and 4,**

While disclosing applicant's invention of claim 1 above, Tsuru does not disclose that the antenna may be comprised of a patch or loop antenna.

Filimon discloses that it is useful in a hand-held communication device (101) with an antenna (200), to provide a loop antenna (col 1 lines 53-56), or a patch antenna (col 2 lines 41-46).

Therefore, it would have been obvious to one skilled in the art to use such antennas in the device of Tsuru as they are both well known options available at the time of the invention. Further Filimon discloses that loop antennas may "yield a desired radiation pattern when located proximate to the body" (col 1 lines 55-56), and that a patch antenna may reduce the need for typical antenna devices which are ungainly (col 4 lines 9-12, col 1 lines 48-52).

**Regarding claim 6,**

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Tsuru further discloses that it is useful to couple a receive antenna (col 5 lines 51-55) to the hand-held device.

**Regarding claim 7,**

Filimon further discloses that it is useful to match the impedance of the antenna to the transmitter (inherently comprising an amplifier, col 3 lines 46-57).

13. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuru as applied to claim 1 above, and further in view of Flowerdew et al, US Pat 6,134,420.

Tsuru discloses applicant's invention of claim 1, and further states that it is useful to couple a receive antenna (col 5 lines 51-55) to the hand-held device. Tsuru does not disclose that the receive antenna has a field of reception orthogonal to the field of reception of the transmit antenna.

Flowerdew discloses that it is useful in a hand-held device (104) comprising a transmit antenna (904) and a receive antenna (902) to provide the two antennas with mutually orthogonal fields of transmission/reception (col 8 lines 25-61).

Therefore, it would have been obvious to one skilled in the art to add such a function to Tsuru, since Flowerdew states that orthogonal fields minimize mutual coupling (col 13 lines 36-48).

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14. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuru as applied to claim 8 above.

Tsuru discloses applicant's invention, but does not specifically disclose that the device is a cellular telephone.

However, given that Tsuru does disclose a portable radio communicator, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize such means in a cellular system, as antenna diversity is commonly used in cellular devices in order to provide a maximum amount of signal gain and clarity with a minimum amount of power used.

15. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuru as applied to claim 8 above, and further in view of Flowerdew.

Tsuru discloses applicant's invention of claim 8, but does not disclose that the receive antenna has a field of reception orthogonal to the field of reception of the transmit antenna.

Flowerdew discloses that it is useful in a hand-held device (104) comprising a transmit antenna (904) and a receive antenna (902) to provide the two antennas with mutually orthogonal fields of transmission/reception (col 8 lines 25-61).

Therefore, it would have been obvious to one skilled in the art to add such a function to Tsuru, since Flowerdew states that orthogonal fields minimize mutual coupling (col 13 lines 36-48).

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16. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuru as applied to claim 8 above, and further in view of Filimon.

**Regarding claim 11,**

While disclosing applicant's invention of claim 8 above, Tsuru does not disclose that the antenna may be comprised of a patch or loop antenna.

Filimon discloses that it is useful in a hand-held communication device (101) with an antenna (200), to provide a patch antenna (col 2 lines 41-46), which would be contained within the housing of the unit.

Therefore, it would have been obvious to one skilled in the art to use such an antenna in the device of Tsuru as it was a well known option available at the time of the invention. Further Filimon discloses that a patch antenna may reduce the need for typical antenna devices which are ungainly (col 4 lines 9-12, col 1 lines 48-52). **Further regarding claim 12,** while Filimon discloses that a patch antenna may comprise a piece of copper foil mounted to the inside of the device, Filimon further teaches that the patch antenna may be a conductive coating applied directly to a panel (col 3 line 64-col 4 line 2 and lines 43-47). This would obviously motivate one of ordinary skill in the art to enclose such antennae in an IC package, especially given the suggestion of a conductive coating, as an IC package would reduce production costs by eliminating extra components.

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*Conclusion*

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kinney et al discusses a mobile device with two orthogonal antennas.

Gratias discloses a mobile device with an antenna which radiates over less than 360 degrees of arc.

Hunt and Danforth disclose shields for a cellular phone.

Daniels discloses an antenna radiation attenuating device.

**18. Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

**or faxed to:**

(703) 308-9051, (for formal communications intended for entry)

**Or:**

(703) 305-9508 (for informal or draft communications, please label "PROPOSED"  
or "DRAFT")

Hand delivered responses should be brought to Crystal Park II, 2121 Crystal  
Drive, Arlington VA, sixth floor (receptionist).

**19. Any inquiry concerning this communication or earlier communications from the examiner  
should be directed to Charles Craver whose telephone number is (703) 305-3965.**

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dwayne Bost, can be reached on (703) 305-4778.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3900.

cc  
C. Craver  
December 1, 2000

  
**DWAYNE BOST**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2600**  
*12-1-00*